

WHAT IS CLAIMED:

1. A method for tracking a target, comprising:
 - receiving an input image including a target having a target position;
 - determining at least one component in the image according to an edge direction of connected pixels within the component;
 - associating the at least one component with one of a plurality of predetermined tracks, where at least one track being associated with the target position, based on the edge direction of said component;
 - updating the track based on the associated component to determine current target position.
2. The method of claim 1, wherein said determining includes determining said at least one component based on said component being located within a predetermined search window associated with an estimated target position.
3. The method of claim 1, wherein said determining includes determining said at least one component based on said pixels satisfying a predetermined threshold.
4. The method of claim 1, wherein said updating includes determining velocity of the target.
5. The method of claim 1, further comprising:
 - generating a track file including the plurality of tracks;
 - and
 - updating the track file by associating or deleting one of the plurality of tracks in accordance with a predetermined threshold being satisfied.
6. The method of claim 5, wherein said updating includes

updating the track file using said association or deletion in accordance with said one of the plurality of tracks associating or not associating with a component for a time period satisfying said predetermined threshold.

7. The method of claim 1, wherein said associating includes assigning a weight for the association of the component to the one of the plurality of tracks.

8. The method of claim 7, wherein said updating includes updating the track based on the associated component having an assigned weight satisfying a predetermined threshold.

9. The method of claim 1, further comprising:
generating a track to associate with the component when failing to associate the component with one of the plurality of predetermined tracks.

10. A device for tracking a target, comprising:
a processor for generating a plurality of associations between a component determined from an input image including a target having a target position, and at least one predetermined track from a track file;

said processor to select one of the plurality of associations of the component and the at least one track based on said selected association satisfying a predetermined threshold to determine current target position, and

wherein the at least one track being updated with the associated component in the track file in response to the selection of association.

11. The device of claim 10, further comprising a memory to store instructions accessible by the processor.

12. The device of claim 10, wherein the component being determined based on said component being located within a predetermined search window associated with an estimated target position.

13. A machine-readable medium having stored thereon a plurality of executable instructions, the plurality of instructions comprising instructions to:

receive an input image including a target having a target position;

determine at least one component in the image according to an edge direction of connected pixels within the component;

associate the at least one component with one of a plurality of predetermined tracks, where at least one track being associated with the target position, based on the edge direction of said component;

update the track based on the associated component to determine current target position.

14. The medium of claim 13, wherein said instructions to determine include instructions to determine said at least one component based on said component being located within a predetermined search window associated with an estimated target position.

15. A method for tracking a target, comprising:

receiving an input image including a target having a target position;

determining a plurality of components in the image according to an edge direction of connected pixels within the component;

associating the plurality of components with a plurality of predetermined tracks, where at least one track being

associated with the target position, based on the edge direction of said component, to generate a plurality of sets of track-to-component associations wherein each component being associated with no more than one track in a set;

assigning a weight to each track-to-component association in a set based on the distance between each track and associated component as related to the target position;

determining the best set of track-to-component associations based on the total weight, calculated by adding the assigned weight for each track-to-component association in the set, for one of the sets summing up to a minimum value, wherein the best set determines the current target position.

16. The method of claim 15, wherein said associating includes generating at least one set of track-to-component associations wherein at least one track in the set fails to associate with a component.